

# Could a TB vaccine protect the elderly from severe COVID?

August 5 2021, by Dennis Thompson

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SARS-CoV-2 (shown here in an electron microscopy image). Credit: National Institute of Allergy and Infectious Diseases, NIH

Scientists suspect that a century-old tuberculosis vaccine might be able to protect older adults against the worst ravages of COVID-19.

The Bacillus Calmette-Guérin (BCG) [vaccine](#) was first used in 1921, and is on the World Health Organization's list of essential medicines. More than 130 million babies worldwide receive this vaccine every year.

But it is also known to calm the [immune system](#), and new research shows the vaccine might specifically blunt the severe inflammatory response that does so much damage to the body during a COVID [infection](#).

"Typically, older people are more susceptible to severe COVID due to their ability to make exuberant inflammatory responses," said senior researcher Dr. Subash Babu, scientific director of the National Institute for Research in Tuberculosis in Chennai, India. "Therefore, BCG might be useful by lowering this propensity."

The BCG vaccine already is used to modulate people's immune reaction in other diseases, most notably bladder cancer, said Dr. Waleed Javaid, director of infection prevention and control at Mount Sinai Downtown in New York City.

Health experts in some nations with high COVID rates and little access to COVID vaccines have considered using BCG as a stopgap measure to protect [older adults](#), researchers said in background notes.

But, they said, there have been concerns that the BCG vaccine might actually increase older folks' inflammation response and worsen their COVID infection.

In this study, researchers gave the BCG vaccine to 82 healthy people between 60 and 80 years old.

A month after vaccination, they found decreases in biochemicals linked to inflammation. Researchers also observed a decrease in enzymes that crop up during lung inflammation, which suggested that BCG might

limit lung damage during COVID infection.

"BCG can potentially be useful as an adjuvant vaccine to the SARS-CoV-2-specific vaccines, and it needs to be tested for its ability to function as a therapeutic vaccine" that could be given as a treatment during infection, Babu said.

"BCG is safe and well tolerated, and widely available—it is the most widely used vaccine in the world," he said.

But things aren't as cut and dried as all that, said Mount Sinai's Javaid, warning that no one should mistake the BCG vaccine as an alternative form of protection against COVID.

This new study didn't include a single COVID patient, and so it didn't directly test the BCG vaccine's effectiveness at all against the new coronavirus, said Javaid, who had no role in the new research.

"This cannot be an alternate in any way to the COVID vaccine. This cannot be used as a stopgap," he said.

"What we see here is that it does suppress some of the immune indicators that are otherwise active during COVID infection, and we know that during COVID infection part of the damage done to our body is because of our immune reaction," Javaid continued. "A lot of studies need to be done to prove or disprove these effects."

The concept is good in theory, he concluded, "but it still needs to be proven more concretely."

The findings were published Aug. 4 in the journal *Science Advances*.

**More information:** Nathella Pavan Kumar et al, Effect of BCG

vaccination on proinflammatory responses in elderly individuals, *Science Advances* (2021). [DOI: 10.1126/sciadv.abg7181](https://doi.org/10.1126/sciadv.abg7181)

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